

**Anti-HSF1 (RABBIT) Antibody**  
**HSF1 Antibody**  
**Catalog # ASR5581**

**Specification**

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**Anti-HSF1 (RABBIT) Antibody - Product Information**

Host	Rabbit
Conjugate	Unconjugated
Target Species	Human
Reactivity	Human
Clonality	Polyclonal
Application	WB, E, I, LCI
Application Note	Anti-Heat Shock Factor 1 Antibody has been tested for use in ELISA and western blot. Specific conditions for reactivity should be optimized by the end user. Expect a band of 57 kDa in size corresponding to HSF1 by western blotting in the appropriate cell lysate or extract. Tested using positive control A431 Whole Cell Lysate p/n W09-000-361.
Physical State	Liquid (sterile filtered)
Buffer	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Immunogen	Affinity purified Anti-HSF1 antibody was prepared from whole rabbit serum produced by repeated immunizations with a synthetic peptide near the n-terminal portion of human HSF1 protein.
Preservative	0.01% (w/v) Sodium Azide

**Anti-HSF1 (RABBIT) Antibody - Additional Information**

**Gene ID** 3297

**Other Names**  
3297

**Purity**

Anti-HSF1 is directed against human HSF1 at a n-terminus position. This product is an affinity purified antibody produced by immunoaffinity chromatography using peptide coupled to agarose beads. A BLAST analysis was used to suggest reactivity with this protein in mouse and bovine species based on 100% homology for the immunogen sequence.

**Storage Condition**

Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.

## Precautions Note

This product is for research use only and is not intended for therapeutic or diagnostic applications.

## Anti-HSF1 (RABBIT) Antibody - Protein Information

Name HSF1 ([HGNC:5224](#))

Synonyms HSTF1

### Function

Functions as a stress-inducible and DNA-binding transcription factor that plays a central role in the transcriptional activation of the heat shock response (HSR), leading to the expression of a large class of molecular chaperones, heat shock proteins (HSPs), that protect cells from cellular insult damage (PubMed: [11447121](http://www.uniprot.org/citations/11447121) target="\_blank">11447121</a>, PubMed: [12659875](http://www.uniprot.org/citations/12659875) target="\_blank">12659875</a>, PubMed: [12917326](http://www.uniprot.org/citations/12917326) target="\_blank">12917326</a>, PubMed: [15016915](http://www.uniprot.org/citations/15016915) target="\_blank">15016915</a>, PubMed: [18451878](http://www.uniprot.org/citations/18451878) target="\_blank">18451878</a>, PubMed: [1871105](http://www.uniprot.org/citations/1871105) target="\_blank">1871105</a>, PubMed: [1986252](http://www.uniprot.org/citations/1986252) target="\_blank">1986252</a>, PubMed: [25963659](http://www.uniprot.org/citations/25963659) target="\_blank">25963659</a>, PubMed: [26754925](http://www.uniprot.org/citations/26754925) target="\_blank">26754925</a>, PubMed: [7623826](http://www.uniprot.org/citations/7623826) target="\_blank">7623826</a>, PubMed: [7760831](http://www.uniprot.org/citations/7760831) target="\_blank">7760831</a>, PubMed: [8940068](http://www.uniprot.org/citations/8940068) target="\_blank">8940068</a>, PubMed: [8946918](http://www.uniprot.org/citations/8946918) target="\_blank">8946918</a>, PubMed: [9121459](http://www.uniprot.org/citations/9121459) target="\_blank">9121459</a>, PubMed: [9341107](http://www.uniprot.org/citations/9341107) target="\_blank">9341107</a>, PubMed: [9499401](http://www.uniprot.org/citations/9499401) target="\_blank">9499401</a>, PubMed: [9535852](http://www.uniprot.org/citations/9535852) target="\_blank">9535852</a>, PubMed: [9727490](http://www.uniprot.org/citations/9727490) target="\_blank">9727490</a>). In unstressed cells, is present in a HSP90-containing multichaperone complex that maintains it in a non-DNA-binding inactivated monomeric form (PubMed: [11583998](http://www.uniprot.org/citations/11583998) target="\_blank">11583998</a>, PubMed: [16278218](http://www.uniprot.org/citations/16278218) target="\_blank">16278218</a>, PubMed: [9727490](http://www.uniprot.org/citations/9727490) target="\_blank">9727490</a>). Upon exposure to heat and other stress stimuli, undergoes homotrimerization and activates HSP gene transcription through binding to site-specific heat shock elements (HSEs) present in the promoter regions of HSP genes (PubMed: [10359787](http://www.uniprot.org/citations/10359787) target="\_blank">10359787</a>, PubMed: [11583998](http://www.uniprot.org/citations/11583998) target="\_blank">11583998</a>, PubMed: [12659875](http://www.uniprot.org/citations/12659875) target="\_blank">12659875</a>, PubMed: [16278218](http://www.uniprot.org/citations/16278218) target="\_blank">16278218</a>, PubMed: [1871105](http://www.uniprot.org/citations/1871105) target="\_blank">1871105</a>, PubMed: [1986252](http://www.uniprot.org/citations/1986252) target="\_blank">1986252</a>, PubMed: [25963659](http://www.uniprot.org/citations/25963659) target="\_blank">25963659</a>, PubMed: [26754925](http://www.uniprot.org/citations/26754925) target="\_blank">26754925</a>, PubMed: [7623826](http://www.uniprot.org/citations/7623826) target="\_blank">7623826</a>, PubMed: [7935471](http://www.uniprot.org/citations/7935471) target="\_blank">7935471</a>, PubMed: [8455624](http://www.uniprot.org/citations/8455624) target="\_blank">8455624</a>, PubMed: [8940068](http://www.uniprot.org/citations/8940068) target="\_blank">8940068</a>, PubMed: [9499401](http://www.uniprot.org/citations/9499401) target="\_blank">9499401</a>, PubMed: [9727490](http://www.uniprot.org/citations/9727490) target="\_blank">9727490</a>). Upon heat shock stress, forms a chromatin-associated complex with TTC5/STRAP and p300/EP300 to stimulate HSR transcription, therefore increasing cell survival (PubMed: [18451878](http://www.uniprot.org/citations/18451878) target="\_blank">18451878</a>).

Activation is reversible, and during the attenuation and recovery phase period of the HSR, returns to its unactivated form (PubMed:<a href="http://www.uniprot.org/citations/11583998" target="\_blank">11583998</a>, PubMed:<a href="http://www.uniprot.org/citations/16278218" target="\_blank">16278218</a>). Binds to inverted 5'-NGAAN-3' pentamer DNA sequences (PubMed:<a href="http://www.uniprot.org/citations/1986252" target="\_blank">1986252</a>, PubMed:<a href="http://www.uniprot.org/citations/26727489" target="\_blank">26727489</a>). Binds to chromatin at heat shock gene promoters (PubMed:<a href="http://www.uniprot.org/citations/25963659" target="\_blank">25963659</a>). Activates transcription of transcription factor FOXR1 which in turn activates transcription of the heat shock chaperones HSPA1A and HSPA6 and the antioxidant NADPH-dependent reductase DHRS2 (PubMed:<a href="http://www.uniprot.org/citations/34723967" target="\_blank">34723967</a>). Also serves several other functions independently of its transcriptional activity. Involved in the repression of Ras-induced transcriptional activation of the c-fos gene in heat-stressed cells (PubMed:<a href="http://www.uniprot.org/citations/9341107" target="\_blank">9341107</a>). Positively regulates pre-mRNA 3'-end processing and polyadenylation of HSP70 mRNA upon heat-stressed cells in a symplekin (SYMPK)-dependent manner (PubMed:<a href="http://www.uniprot.org/citations/14707147" target="\_blank">14707147</a>). Plays a role in nuclear export of stress- induced HSP70 mRNA (PubMed:<a href="http://www.uniprot.org/citations/17897941" target="\_blank">17897941</a>). Plays a role in the regulation of mitotic progression (PubMed:<a href="http://www.uniprot.org/citations/18794143" target="\_blank">18794143</a>). Also plays a role as a negative regulator of non-homologous end joining (NHEJ) repair activity in a DNA damage-dependent manner (PubMed:<a href="http://www.uniprot.org/citations/26359349" target="\_blank">26359349</a>). Involved in stress-induced cancer cell proliferation in a IER5-dependent manner (PubMed:<a href="http://www.uniprot.org/citations/26754925" target="\_blank">26754925</a>).

#### Cellular Location

Nucleus. Cytoplasm. Nucleus, nucleoplasm. Cytoplasm, perinuclear region. Cytoplasm, cytoskeleton, spindle pole. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome Chromosome, centromere, kinetochore Note=The monomeric form is cytoplasmic in unstressed cells (PubMed:26159920, PubMed:8455624). Predominantly nuclear protein in both unstressed and heat shocked cells (PubMed:10359787, PubMed:10413683). Translocates in the nucleus upon heat shock (PubMed:8455624). Nucleocytoplasmic shuttling protein (PubMed:26159920). Colocalizes with IER5 in the nucleus (PubMed:27354066). Colocalizes with BAG3 to the nucleus upon heat stress (PubMed:26159920, PubMed:8455624). Localizes in subnuclear granules called nuclear stress bodies (nSBs) upon heat shock (PubMed:10359787, PubMed:10747973, PubMed:11447121, PubMed:11514557, PubMed:19229036, PubMed:24581496, PubMed:25963659). Colocalizes with SYMPK and SUMO1 in nSBs upon heat shock (PubMed:10359787, PubMed:11447121, PubMed:11514557, PubMed:12665592, PubMed:14707147) Colocalizes with PRKACA/PKA in the nucleus and nSBs upon heat shock (PubMed:21085490). Relocalizes from the nucleus to the cytoplasm during the attenuation and recovery phase period of the heat shock response (PubMed:26159920). Translocates in the cytoplasm in a YWHAE- and XPO1/CRM1-dependent manner (PubMed:12917326). Together with histone H2AX, redistributed in discrete nuclear DNA damage-induced foci after ionizing radiation (IR) (PubMed:26359349). Colocalizes with calcium-responsive transactivator SS18L1 at kinetochore region on the mitotic chromosomes (PubMed:18794143). Colocalizes with gamma tubulin at centrosome (PubMed:18794143). Localizes at spindle pole in metaphase (PubMed:18794143). Colocalizes with PLK1 at spindle poles during prometaphase (PubMed:18794143).

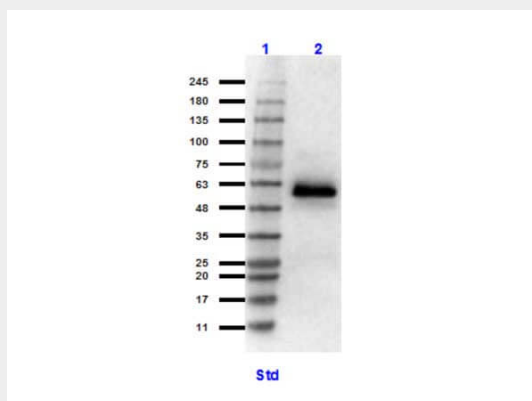
#### Anti-HSF1 (RABBIT) Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)

- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

### Anti-HSF1 (RABBIT) Antibody - Images



Western Blot of Rabbit anti-HSF1 antibody. Lane 1: Ladder Opal PreStained (p/n MB-210-0500). Lane 2: A431 Whole Cell lysate (p/n W09-000-361). Load: 35  $\mu$ g per lane. Primary antibody: HSF1 antibody at 1.0  $\mu$ g/ml for overnight at 4°C. Secondary antibody: Peroxidase rabbit secondary antibody (p/n 611-103-133) at 1:70,000 for 30 min at RT. Block: Universal Buffer BlockOut (p/n MB-073) for 30 min at room temperature. Predicted/Observed size: ~57kDa for HSF1 in A431 whole cell lysate.

### Anti-HSF1 (RABBIT) Antibody - Background

Anti-HSF1 Antibody was designed, produced, and validated as part of the Joy Cappel Young Investigator Award (JCYIA). Heat shock factor 1 (HSF1) is a highly conserved transcription factor that coordinates stress-induced transcription and directs versatile physiological processes in eukaryotes. Upon stress, HSF1 is the key transcriptional activator of chaperones, co-chaperones and ubiquitin, and also coordinates the expression of many transcriptional and translational regulators, signaling molecules and mitotic determinants. HSF1 is involved in balancing core cellular processes during stress and enables their rapid re-establishment once conditions suitable for proliferation have been restored. Importantly, HSF1 controls a distinct set of target genes in cell stress, development and cancer progression. The central role of HSF1 in diverse cellular functions is reflected in pathologies, such as neurodegenerative diseases and cancer, where an imbalance in HSF1 activity facilitates disease onset. The ability of cancer cells to harness HSF1 for metastatic progression highlights the plasticity of HSF1 in rewiring transcription and coordinating cellular processes. Anti-HSF1 antibody is thus ideal for investigators involved in cancer research and neurodegenerative diseases.